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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)			
Office Action Summary		10/590,055	KIKUSHIMA ET AL.			
		Examiner	Art Unit			
		TANYA NGO	2613			
Period fo	The MAILING DATE of this communication app or Reply	ears on the cover sheet with the c	orrespondence address			
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).						
Status						
1) 又	Responsive to communication(s) filed on <u>6/9/2</u>	009				
· · · · · · · · · · · · · · · · · · ·		action is non-final.				
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٠,١	closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.					
		pane Quayio, 1000 0.21 1.1, 10	0 0.0. 2.0.			
Dispositi	on of Claims					
 4) Claim(s) 1-14 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) is/are allowed. 6) Claim(s) 1-14 is/are rejected. 7) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/or election requirement. 						
Application Papers						
9)☐ The specification is objected to by the Examiner.						
10)☐ The drawing(s) filed on is/are: a)☐ accepted or b)☐ objected to by the Examiner.						
	Applicant may not request that any objection to the					
	Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).					
11)	The oath or declaration is objected to by the Ex	aminer. Note the attached Office	Action or form PTO-152.			
Priority ι	ınder 35 U.S.C. § 119					
 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 						
2) Notic 3) Inform	t(s) e of References Cited (PTO-892) e of Draftsperson's Patent Drawing Review (PTO-948) mation Disclosure Statement(s) (PTO/SB/08) r No(s)/Mail Date 6/9/2009.	4) Interview Summary Paper No(s)/Mail Da 5) Notice of Informal P 6) Other:	ate			

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DETAILED ACTION

Examiner is withdrawing previous final action sent out on 9/08/2009 and is restarting the clock.

Response to Arguments

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

- 2. The following is a quotation of the first paragraph of 35 U.S.C. 112:
 - The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
- 3. Claims 2-3 and 9-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Re claim 2-3 and 9-10, the claims recite that the cancellation means comprise of "a filter means for extracting one or more harmonic distortions of the first signal interfering with the second signal in the converting electrical signal". Within the specification, the applicant also discloses that the cancellation means comprises a filter for extracting and electrical signal (paragraph [0008] lines 2-6, paragraph [0009] lines 3-6, paragraph [0013] lines 10-12 of applicant's disclosure) not harmonic distortions. The applicant later discloses that an electrical signal is passed "through a high-pass filter 24 to extract harmonic

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distortions having higher frequencies then the FM batch conversion signal" (paragraph [0040] lines 7-10 of applicant disclosure) but there is no mention of a second signal or that the harmonic distortions are interfering with the second signal.

- 4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 5. Claims 1 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claims 1 and 8, the applicant claims "a photoelectric conversion means for converting one of the split optical signals to a converted electrical signal" and then "a cancellation means for canceling the one or more harmonic distortions of the first signal interfering with the second signal in the other of the split optical signals". However, the applicant discloses in Fig. 20 that photoelectric converter 23 is part of the cancellation signal means 100 as disclosed by Fig. 20. Furthermore, there is no other photoelectric conversion means present in the optical transmitting device as disclosed in Fig. 18 and 19, which are both different embodiments of the optical transmitting device. According to the claim, the photoelectric conversion means is separate from the cancellation means. However, the Fig. 20 of the specification shows photoelectric converting means is part of the cancellation means, creating a disconnected between the claimed subject matter and the applicant invention according to figure 18, 19, and 20 of specification.

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Re claim 2-7 and 9-14, the claims are all dependent upon claim 1 and 8, and contained the same 112 issue.

6. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a combiner (28, Fig. 18, which combines the BS/CS-RS signals, which are the second signals, with the cancellation signal, paragraph [0040] in specification) and the external modulator (18, Fig. 18, to externally modulate the other optical signal split by the optical splitter 20, paragraph [0041] of specification).

Re Claims 1 and 8, the applicant claims "a cancellation means for canceling one or more harmonic distortions of the first signal interfering with the second signal contained in the other of the split optical signals" but does not disclose in any of the previous device how the second optical signal is present in the other of the split optical signals. Furthermore, the external modulator is required in the invention to externally modulate the optical signal by the electrical signal that includes with the cancellation signal in order to remove the harmonic distortions (paragraph [0041]). The applicant claims the cancellation means, but does not claim the use or purpose of the cancellation means in the overall layout of the invention, making it unclear as to the use of the cancellation means.

Re claim 2-7 and 9-14, the claims are all dependent upon claim 1 and 8, and contained the same 112 issue.

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Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 8. Claim 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farina US

 Patent 5,515,199 and Koichi et al (herein Koichi) JP 06-104867 (referred to patent '867)

Re claim 1 and 8, Farina discloses an optical transmitting device for modulation an optical signal by a first signal with and then by a second signal for transmission (Fig. 5), the device comprises:

An optical splitting means for splitting the optical signal modulated by the first signal into split optical signals (the optical signal is input into a modulator 52 and is modulated with signals S in the main modulator, 54. The modulated main optical signal is split in the modulator into two parts and Output from the modulator), the optical signal modulated by the first signal including one or more harmonic distortions of the first signal (the main optical signal contains all the components S and includes distortion, Fig. 5. Furthermore, the present system is drawn toward correcting harmonic distortions, therefore the distortion in the system comprises of harmonic distortion);

a photoelectric conversion means for converting one of the split optical signals into a converted electrical signal (a portion of the main modulated optical beams is tapped and detected by the photodetector 65, Fig. 5, Col 4, lines 47-49); and

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a cancellation means for canceling the one or more harmonic distortions of the first signal by using the converted electrical signal (the portion of the main modulated optical beam that is tapped is amplified to the delay and equalization circuit 68, and continues through a signal combiner and is eventually fed into correction modulator 54. The optical beams from the main modulator 52 and the correction modulator 54 and then combined at the final optical coupler 72 o achieve cancellation of nonlinear distortion products, Col. 8, lines 45-57. Nonlinear distortion products comprises of harmonic distortions).

Farina does not explicitly disclose that the harmonic distortions interfere with the second signal contained in the other of the split optical signals. Japanese Patent Publication '867 discloses providing plural optical modulators 2-1 to 2-n for performing light intensity modulation with electric signals from the corresponding signal order corresponding to the respective signal source 1-1 to 1-n are provided where the optical modulators are cascade arranged so as to successively from the light intensity modulation. Farina and '867 are analogous art because they are from the same field of endeavor, optical transmission. At the time of the invention it would have been obvious to one of ordinary skill in the art, having the teachings of Farina and '867 before him or her, to modify the transmitter of Farina to further include another modulator cascade arranged after the external modulator of Farina because it allows for one light source to be used to achieve a frequency multiplexed signal, which means the signal is able to carry more information, and noise degradation due to interference of the light concerned at the time of synthesizing signal light from a plurality of light sources is eliminated and is not frequency to limit a using wavelength (Abstract).

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Naturally flowing from this combination, Farina and '867, the distortion that is

included with the signals output from the first modulator will interfere with the second

signals since the distortions were not removed prior to the optical signal is input into the

external modulator because the distortions will already be present in the optical signal prior

to further modulation, and are therefore transferred to the second optical signal.

Re claims 2 and 9, Farina and '867 discloses all the elements of claims 1 and 8 which

claims 2 and 10 are dependent upon. Furthermore, Farina discloses the cancellation means

comprises:

a filter means for extracting the one or more harmonic distortions of the first signal

interfering with the second signal in the converted electrical signal (signal combiner 63, Fig.

5, outputs a difference signal between the main modulator and the input signal, Col. 4, lines 40-

54. Tthe difference between the two signals input into the combiner is the distortion that is present

in the system, which includes harmonic distortion. The difference signal is an electrical signal.);

a modulation means for modulating the other of the split optical signals with the

electrical signal (correction modulator 54, Fig. 5, outputs a modulated signal that was modulated

by the electrical signal and phase shifted by delay element and is eventually coupled with the other

split optical signal, which modulates the split optical signal. Therefore, the other split optical

signal is modulated with a distortion canceling signal in the coupler which originates from the

electrical signal).

Farina discloses a phase adjustment means (94, delay element). However, Farina does

not disclose a phase adjustment means for the adjusting a phase of the extracted electrical.

The phase adjustment is required to create the inverse distortion signal that is output from the correction modulator, 54, Fig. 5. The phase adjustment or delay must take place at any one of the input signals of the correction modulator so that one of the inputs contains the phase adjustment and the adjustment will be present in the output of the correction modulator, creating the a proper correction signal. Therefore, at the time of the invention it would have been obvious for one of ordinary skill in the art, having the teachings of Farina to know that the phase adjustment means is required in one of the input signals of the error correction modulator to output the inverse distortion signal and place the phase adjuster in series with the optical signal, as disclosed by Farina, or in series with the electrical signal so that the delay or phase adjustment will be present in the correction signal. Phase adjustment means for electrical signals is well known in the art.

Re claims 3 and 10, Farina and '867 disclose all the elements of claim 1 and 8, which claims 3 and 10 are dependent. Furthermore, Farina discloses the cancellation means comprises:

a filter means for extracting the one or more harmonic distortions of the first signal interfering with the second signal in the converted electrical signal (signal combiner 63, Fig. 5, outputs a difference signal between the main modulator and the input signal, Col. 4, lines 40-54. The difference between the two signals input into the combiner is the distortion that is present in the system, which includes harmonic distortion. The difference signal is an electrical signal.).

Farina discloses a phase adjustment means (94, delay element). However, Farina does not disclose a phase adjustment means for the adjusting a phase of the extracted electrical.

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The phase adjustment is required to create the inverse distortion signal that is output from the correction modulator, 54, Fig. 5. The phase adjustment or delay must take place at any one of the input signals of the correction modulator so that one of the inputs contains the phase adjustment and the adjustment will be present in the output of the correction modulator, creating the a proper correction signal. Therefore, at the time of the invention it would have been obvious for one of ordinary skill in the art, having the teachings of Farina to know that the phase adjustment means is required in one of the input signals of the error correction modulator to output the inverse distortion signal and place the phase adjuster in series with the optical signal, as disclosed by Farina, or in series with the electrical signal so that the delay or phase adjustment will be present in the correction signal. Phase adjustment means for electrical signals is well known in the art.

Furthermore, Farina does not disclose a combining means for combining the phaseadjusted electrical signal and the second signal. However, Farina does disclose that the phase
adjusted electrical signal is going to be feed into a correction modulator that will output an
optical correction signal to be combined with the already modulated split first signal (Fig. 5)
and '867 discloses another modulator (2-n, including 2-2, Fig. 1) in order to combine second
signals with the already modulated optical signal. Since the correction modulator of Farina
and the external modulator of '867 are both further modulating the signal output for the first
modulator (2-1, Fig. 2) of Farina, it would be obvious for one of ordinary skill in the art to
use one modulator rather then two modulators, and to combined both the electrical signals
that inputted into the external modulator of '867 and the correction modulator of Farina to

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create one input signal that has both the corrections signal and the second signal and modulate the output of the first modulator of Farina once to reduce complexity and cost because it reduces the number of modulators.

9. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farina and '867 as applied to claim 1 and 8 above, and further in view of Kikushima US PG PUB 2005/0244155 A1.

Re claims 4 and 11, Farina and '867 discloses all the elements of claim 1 and 8, which claims 4 and 11 are dependent upon. Farina does not appear to explicitly disclose that the first signal is a FM batch converted signal. However, Kikushima discloses that conventionally an optical signal transmitter and an optical signal transmission system employ a method for subjecting video signals to frequency modulation as a single unit, know as FM batch conversion (paragraph [0002]). Farina and Kikushima are analogous art because they are from the same field of endeavor, optical transmission of video signal. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina and Kikushima before him or her, to modify the optical transmitter of Farina to include the FM batch conversion method of Kikushima because it is a conventional practice for video signals, which the CATV signals of Farina are, and it allows one to frequency modulate as a single unit (paragraph [0002]) reducing the complexity of the circuit.

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10. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farina, '867, and Kikushima as applied to claim 4 and 11 above, and further in view of Buabbud et al (herein Buabbud) US Patent 6,366,712.

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Re claims 5 and 12, Farina, '867, and Kikushima disclose all the elements of claim 4 and 11, which claims 5 and 12 are dependent upon. Farina, '867, and Kikushima do not appear to explicitly the second signal is a satellite broadcasting RF signal. However, Buabbud discloses the combination of two separation RF signals, such as CATV signals and a Direct Broadcasting Satellite signal on a single optical fiber (Col. 1, lines 9-15). Farina and Buabbud are analogous art because they are from the same field of endeavor, optical transmission of CATV signals. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina, '867, and Buabbud before him or her, to modify the optical transmission system of Farina and '867 to include the satellite broadcasting RF signal of Buabbud as the second signal because it would be desirable to provide DBS signals to the home other than by an individual satellite dish because of the ever increasing demand of other types of communication techniques (Col. 1, lines 18-41).

11. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farina, '867, Kikushima, and Buabbud as applied to claims 5 and 12 above, and further in view of Nomura et al (herein Nomura) US Patent 5,739934, Nippon Telegraph JP 3339031 and Hayashi US Patent 5,442,681.

Re claims 6 and 13, Farina, '867, Kikushima, and Buabbud disclose all the elements of claims 5 and 12, which claims 6 and 13 are dependent upon. Farina, '867, Kikushima, and

Buabbud does not appear to explicitly the receiver of claims 6 and 13. However, Nomura discloses a conventional WDM receiver including:

an optical splitting means for splitting the received optical signal to an optical signal containing the FM batch converted signal and an optical signal containing the satellite broadcasting RF signal (a demultiplexer, 6, Fig. 1, is composed of optical couplers, that splits the incoming signal into multiple signals that are fed into wavelength tunable filters. Col 3, lines 17-22

a first photoelectric conversion means for converting the optical signal containing the FM batch conversion signal split by the optical splitting means to an electrical signal (the lightwave signals, which have been transmitted through the wavelength filters, therefore separated from the rest, are supplied to O/E converter and converted into electrical signals, Col 3, lines 23-26);

a second photoelectric conversion means for converting the optical signal containing the satellite broadcasting RF signal split by the optical splitting means to an electrical signal (the lightwave signals, which have been transmitted through the wavelength filters, therefore separated from the rest, are supplied to O/E converter and converted into electrical signals, Col 3, lines 23-26).

Farina, '867 and Hayashi are analogous art because they are from the same field of endeavor, frequency/wavelength multiplexing. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina, '867, and Hayashi before him or her, to modify the transmission system of Farina and '867 to include

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the receiver of Hayashi because it is a conventional configuration of a WDM optical receiver (Col. 3, lines 1-2) and therefore cost effective and easy to produce.

Farina, '867, and Hayashi do not appear to explicitly disclose a demodulation means for FM demodulating the FM batch converted signal separated by the filter means in the prior art of Nippon. However, Nippon discloses a receiver including a FM demodulator 7 to recover a multi-channel AM video transmission signal. Farina, '867, and Nippon are analogous art because they are from the same field of endeavor, transmission of CATV signals with a secondary signal. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Nippon before him or her, to modify the receiver of the prior art of Nippon to include the FM demodulator of the present invention of Nippon because it is able to recover and resort the multi-channel AM signal.

Farina, '867, Kikushima, Buabbud, Hayashi, and Nippon do not appear to explicitly disclose a downconverting means for down-converting the satellite broadcasting RF signal separated by the filter means. However, Hayashi discloses a conventional satellite broadcast receiving apparatus includes a down-converter to receive the satellite broadcasting signal. Farina, '867, Kikushima, Buabbud, Nippon, and Hayashi are analogous art because they are from the same field of endeavor, the transmission of satellite broadcasting signals. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina, '867, Kikushima, Buabbud, Nippon and Hayashi before him or her, to modify the receiver of Farina, '867, Kikushima, Buabbud, and Nippon to include the

downconverter of Hayashi because it is a conventional practice to downconvert received satellite broadcasting signals.

12. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farina, '867, Kikushima, and Buabbud as applied to claim 5 and 12 above, and further in view of Nippon Telegraph JP 3339031 and Hayashi US Patent 5,442,681.

Re claims 7 and 14, Farina, '867, Kikushima, and Buabbud disclose all the elements of claim 5 and 12, which claims 7 and 4 are dependent upon. Farina, '867, Kikushima, and Buabbud do not disclose the receiver of claim 7 and 14. However, Nippon discloses an optical receiving device for receiving an optical signal transmitted via an optical path from the optical transmitting device that transmits two frequency multiplexed signals (Fig. 9, paragraph [0003]), wherein the optical receiving device comprises:

a photoelectric conversion means (received signal changed into an electrical signal with a photodiode/electric converter 109, paragraph [0004]) for converting the received optical signal to an electrical signal;

a filter means for separating the electrical signal converted by the photoelectric conversion means to the FM batch converted signal and the satellite broadcasting RF signal (signals are separated into two signals, one side is inputted into the high region filter 110 and another is inputted in the low-pass filter 111, paragraph [0004]). Farina, '867, and Nippon are analogous art because they are from the same field of endeavor, transmission of CATV signals with a secondary signal. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina, '867, and Nippon before him

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or her, to modify the transmission system of Farina and '867 to include the receiver of Nippon because it is a conventional configuration of the optical transmission device (paragraph [0003]), and therefore cost effective and easy to produce.

Nippon does not appear to explicitly disclose a demodulation means for FM demodulating the FM batch converted signal separated by the filter means in the prior art of Nippon. However, Nippon discloses a receiver including a FM demodulator 7 to recover a multi-channel AM video transmission signal. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Nippon before him or her, to modify the receiver of the prior art of Nippon to include the FM demodulator of the present invention of Nippon because it is able to recover and resort the multi-channel AM signal.

Farina, '867, Kikushima, Buabbud, and Nippon does not appear to explicitly disclose a downconverting means for down-converting the satellite broadcasting RF signal separated by the filter means. However, Hayashi discloses a conventional satellite broadcast receiving apparatus includes a down-converter to receive the satellite broadcasting signal. Farina, '867, Kikushima, Buabbud, Nippon, and Hayashi are analogous art because they are from the same field of endeavor, the transmission of satellite broadcasting signals. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Farina, '867, Kikushima, Buabbud, Nippon and Hayashi before him or her, to modify the receiver of Farina, '867, Kikushima, Buabbud, and Nippon to include the downconverter of

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Hayashi because it is a conventional practice to downconvert received satellite broadcasting signals.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANYA NGO whose telephone number is (571) 270-7488. The examiner can normally be reached on M - F from 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent

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/Ngo/

Oct. 8, 2009

/Kenneth N Vanderpuye/

Supervisory Patent Examiner, Art Unit 2613